

# I. DODI 5000.2--The Purpose of Test, Evaluation & Operational Suitability:

"The degree to which a system can be placed satisfactorily in field use with consideration given to availability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistics supportability, natural environment effects and impacts, documentation, and training requirements."

# Discussion Topics/Items

## ■ Why OT&E?

- The question is not whether to test, but
  - When to test
  - What to test
  - How to test
- OT&E discovers hidden design, operations and logistics issues
  - not found in contractor or development testing [CT/DT].

# Discussion Topics/Items

- Examples are many
  - AH-64D LONGBOW APACHE OT Jan-Mar 1995
  - DIVAD
- Congress directed
- Supports DAB and Acquisition process

# Discussion Topics/Items

## ■ Stake holders

- Warfighter--User
- PM and PEO--Developer
- Industry--Builder
- OT&E--Tester
- OSD--Approval?
- Congress--Authorization & Funding
- Public--Indirect Support

# Discussion Topics/Items

- OT&E Impacting Design Processes--  
Why?, How?, When?, With What?
- Change/when from Development  
Testing to Operational Testing
- Risk of Operational Testing and not  
Operational Testing

# Discussion Topics/Items

- Keeping pace with technology
  - Technology cycle short
  - Development cycle longer than technology
  - REQUIREMENTS CREEP DURING DEVELOPMENT
    - Software change impacted
    - Configuration of system changes
      - Changes occur until system design concept matures

# Discussion Topics/Items

- Continuous testing and evaluation of system
  - One picture [OT&E test] does not tell the “OT&E story”
    - A mosaic does present the “OT&E story”

# Discussion Topics/Items

- When is OT&E complete?
  - Critical Design Review?
  - Production Base Line Configuration Frozen on System #1 or later!
  - DT/OT II? Or Milestone (Production) or
  - Initial Operation Capability testing? or
  - In combat for first time or when systems has flown XXXX hours/miles, etc.



# Discussion Topics/Items

- All sources of data are useful
  - How to use data (Prototype to production)
    - OT&E plan/process must make allowances
- What must the OT&E Report (to DAB, SEC DEF, Congress) say?
  - What performance items?
  - What is the system's effectiveness rating?

# Discussion Topics/Items

- What must the OT&E Report (to DAB, SEC DEF, Congress) say?
  - What performance items?
  - What is the system's effectiveness rating?
  - What is the system's suitability rating

# Discussion Topics/Items

- What cost items?
  - Peace time costs (operations rate)
  - War (combat) time costs (operations rate)
    - Maintenance Expenditure Limit
- What is the Combat Efficiency of the design?
  - This measure is wrap-up statement

# Discussion Topics/Items

- Return on Investment in OT&E?
  - How evaluated?
  - Faults discovered?
  - Pass or Fail?
    - What constitutes pass? Fail?
      - Is it a Design-to-point--a specific number? Or
      - Is it a performance range:
        - Optimistic upper boundary?
        - Pessimistic lower boundary?

# Discussion Topics/Items

- What is relationship of Measures of Effectiveness specified in an OT&E Plan with actual system specification (contractor specification in compliance with government contract)?

# Discussion Topics/Items

- Acquisition Reform: Impact on Operational Test & Evaluation
  - Acquisition Reform places more power to industry
    - Military specifications and military inspection specifications reduced in applications
      - What is this impact on the OT&E process?
      - Impact on different systems developed by different contractors/industry?
        - Is it negative?

# Discussion Topics/Items

- Better, Faster, Cheaper
  - Heard throughout the sessions
  - Has dramatic impact on the way DOT&E does business
    - Continuous evaluation
    - Get involved at initial systems concept
      - In the draft ROC, military need, discussion
      - Must have “voting”/“veto” authority
      - OTAs to develop OT concurrently

# Discussion Topics/Items

- Must find ways to reduce development and OT&E cycle times
  - To match technology changes
  - This means finding resources (funds from Congress)



# Discussion Topics/Items

## ■ Life Cycle Costs

- Life cycle costs do not consider combat damage
- Systems designed to go into harm's way
- Models and simulation offer promise in this area
  - OT&E execution?
  - Attrition costs?
  - Maintenance expenditure limits?

# Discussion Topics/Items

- Statistical Analyses methodology Solution
  - Of help with small number of test articles, trials, shots
  - Makes efficient use of information for decision-making
  - Used best to evaluate what best can be done under:
    - financial constraints
    - to reset constraints to include schedule

# Discussion Topics/Items

- Modeling and Simulation in an OT
  - How may it be used in operational tests
  - How to play combat damage {evaluate} given a kill.
  - Need to collect now “material properties”
    - On major weapons systems
      - Information for physics-based models
        - Component and part level

# Discussion Topics/Items

- DOT&E should have final “say” as to whether
  - A particular simulation model can be used
  - In conjunction with an OT

# Discussion Topics/Items

- Modeling and Simulation Limits:
  - Title 10, US Code (Para 2399(a) and 2399(h)(1)) states:
    - A major defense acquisition program may not proceed beyond low-rate initial production until initial operational test and evaluation of the program is completed; and the term “operational test and evaluation” does not include and operational assessment based exclusively on computer modeling, simulation, or an analysis of information contained in program documents.

# Discussion Topics/Items

- Software problems must be identified early by OT&E processes
  - They are difficult to evaluate
  - Validation, Verification, and Accreditation?